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(71) Applicant(s)

Timothy Martin Coker
4 Brewery Court, South Road, OUNDLE, PE8 4DZ,
United Kingdom

(72) Inventor(s)

Timothy Martin Coker

(74) Agent and/or Address for Service

Timothy Martin Coker
4 Brewery Court, South Road, OUNDLE, PE8 4DZ,
United Kingdom

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(56) Documents Cited

GB 2258584 A EP 0822695 A1 FR 002725099 A1
DE 29914579 U1 DE 29706223 U1

(58) Field of Search

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(54) Abstract Title

Mobile phone handset with parental control

(57) A mobile phone handset 11 is provided without a standard numeric keypad, but includes a number of keys 14 which each initiate the dialling of an associated predetermined number. The numbers may be programmed by entering a security code or by connection to some external programming device 22 such as a PC. A dedicated button may be provided for contacting the emergency services. The device may be used by parents to prevent their children running up excessive phone bills.

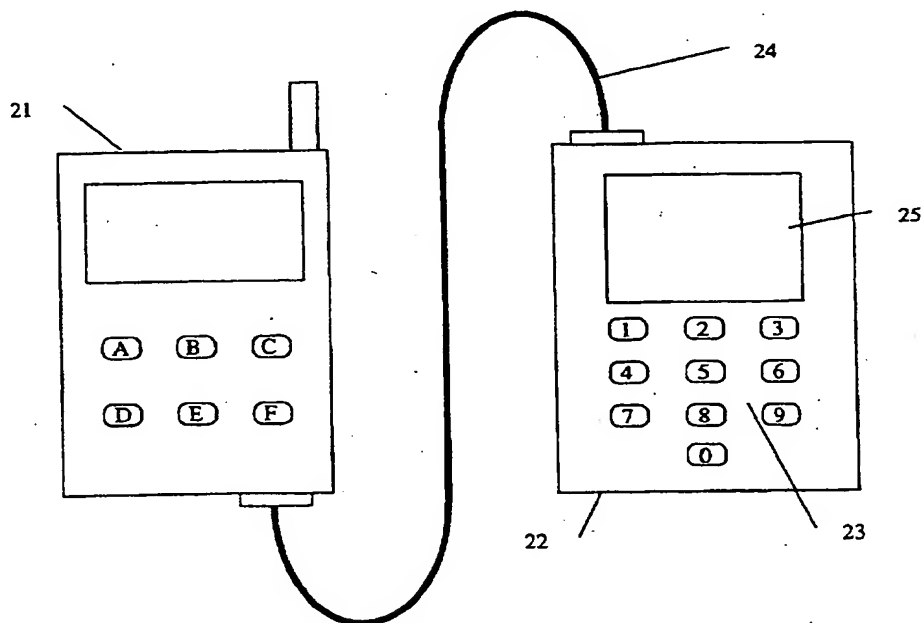


Figure 2

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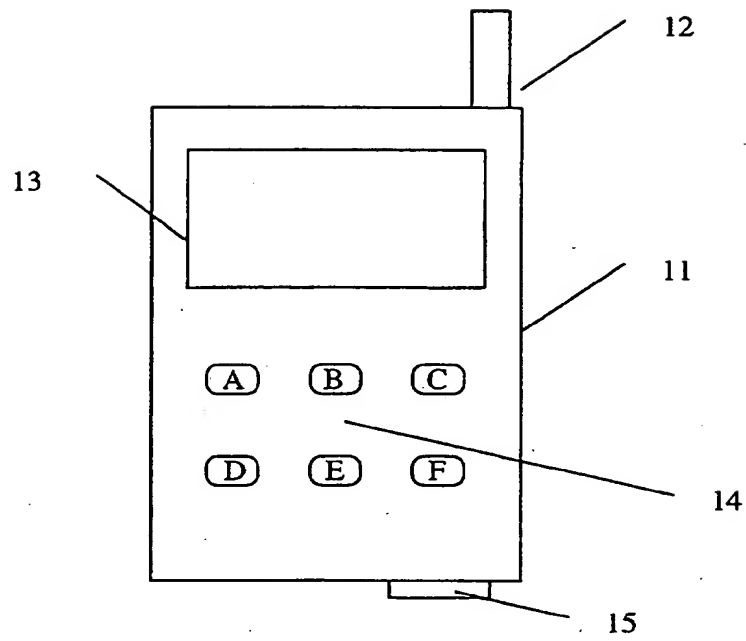


Figure 1

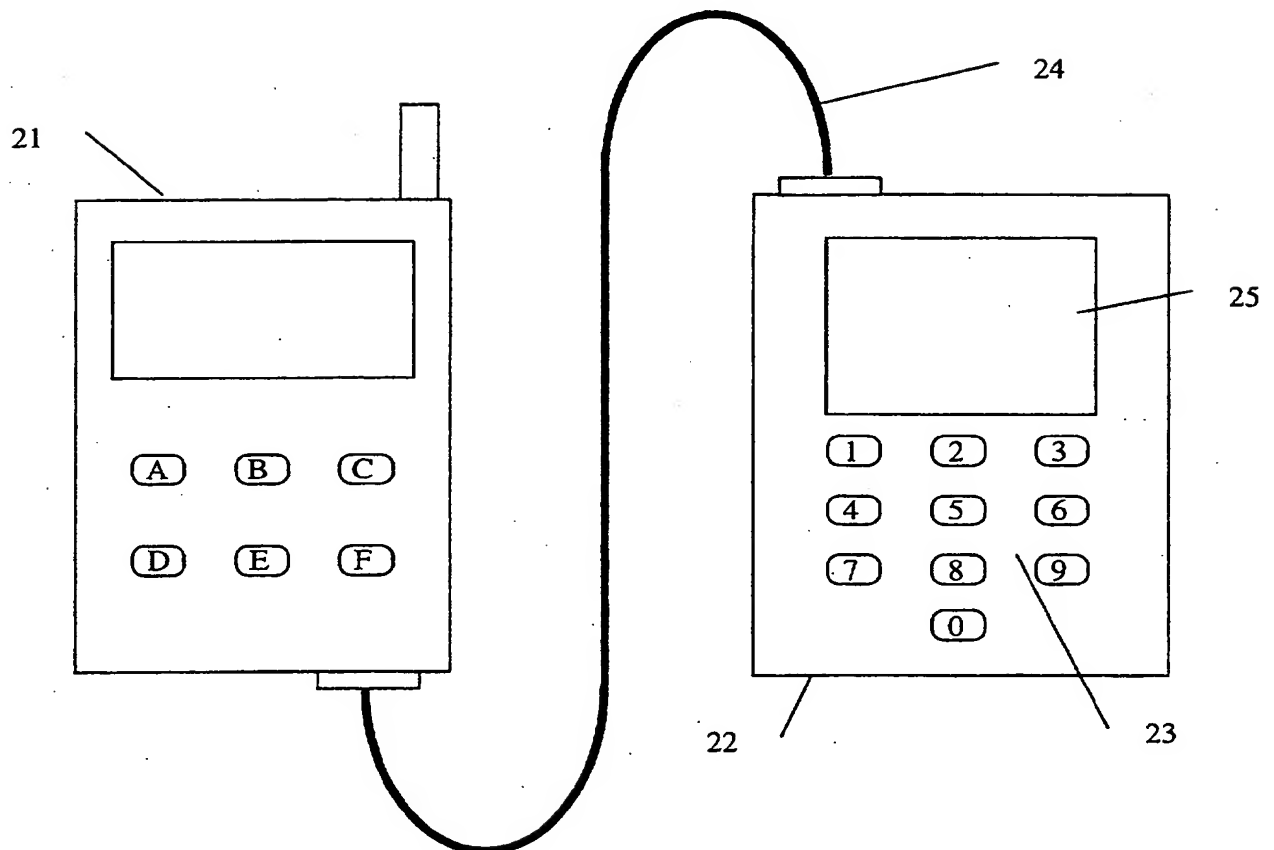


Figure 2

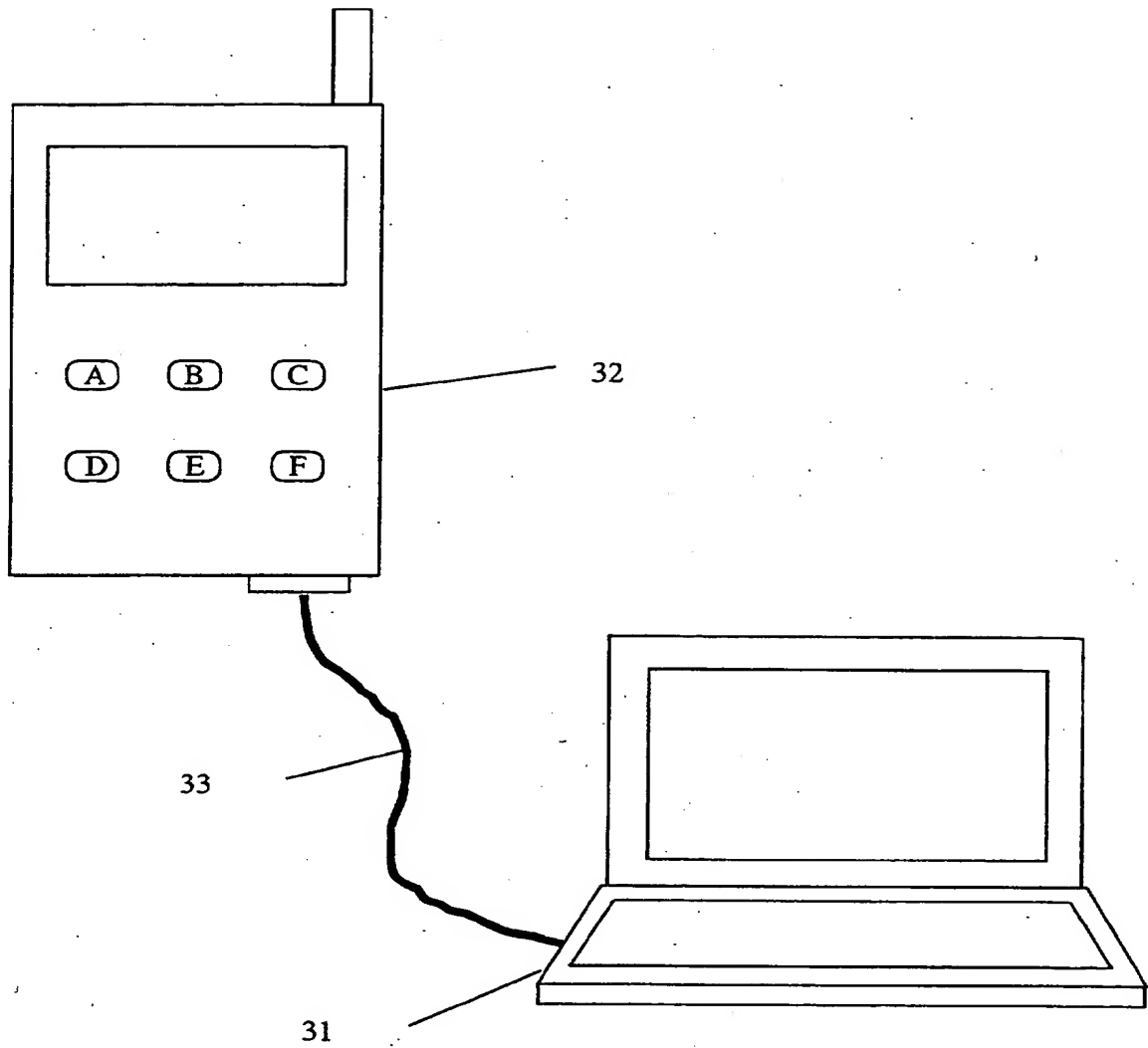


Figure 3

MOBILE PHONE HANDSET WITH PARENTAL CONTROL

This invention relates to the actual handsets that constitute mobile phones but not the underlying mobile phone technology. The principles described in the present application are applicable to mobile phone handsets of all types, this is because the invention relates to the manner by which the number to be called is input to the handset and therefore is completely independent of how the actual connection is made.

Currently, in the UK at least, a high proportion of handsets are bought by parents for the use of their children. This is partly for the practical reason of staying in contact with ones offspring, partly for emergency use but mostly, now, because of peer pressure on children themselves resulting in appeals to the parent. The problem, or at least one problem, with children using mobile phones is that in general they run up large bills. There is currently no perfect way to limit the amount a child spends using his or her phone; a popular method is by use of pre-payment type tariffs but these often offer low value for money in terms of the actual call charge. Thus there is a requirement for an easy way to control how a child uses a mobile phone without necessarily using a high cost tariff.

A possible way to control phone use would be to restrict the numbers that can be dialed. This could be done at the level of the service that is paid for - that is the mobile phone company as a part of the account restricts the numbers that can be called, allowing connections only to certain numbers on a pre-arranged list (in a similar way to discounts on BT's Friends and Family scheme). The problem with this method is that it requires the phone company to actually operate the scheme; this means it isn't a truly independent scheme and furthermore is likely to attract a fee from the phone company for operating said scheme. Thus a better method would be for the phone handset itself, in some way, to facilitate this sort of control.

The obvious problem with this is that a small number of even the shortest of phone numbers will potentially use all digits from 0-9 and a keypad with all these digits can potentially dial any number in the world. Thus a standard

keypad cannot in itself offer any form of restriction. The solution to this problem is a non-standard keypad in which numbers are pre-programmed onto a number of keys. In this way the numbers which that handset can dial are restricted to only those numbers which have been pre-programmed. If the means for pre-programming is under strict parental control the parent would have control over those numbers which a child can dial, thus enabling a certain degree of control over the size of bill which can be run up.

According to the invention, therefore, there is provided a mobile phone handset without a conventional numeric keypad, but with a number of pre-programmed keys and a means for pre-programming these keys. Numbers are dialed exclusively by the use of the pre-programmed keys.

The means for pre-programming the handset would most likely be separate from the handset itself, thus if the parent retains control of the programming means he also retains control of the numbers that the child can phone. The link to the handset from the programming means could be a simple cable or a non-physical method such as a remote infra-red type of wireless connection (eg the IrDA data port). Of course a technician skilled in the art will note that most phone handsets nowadays include the facility to pre-program numbers into keys, thus the basic technology to support the pre-programmed keys themselves is already in place. The difference between the handset as described here and prior art handsets is that the handset of the invention does not have a normal numeric keypad, this prevents 'manual' dialing of numbers. In addition the means for pre-programming the keys is or can be physically distinct from the handset itself.

Whilst the programming means could be a custom device in itself, the actual software/hardware requirement is very simple. Given that connection to the handset is by cable the entire programming means could be implemented as a piece of custom software running on a home PC. The PC would communicate with the handset through, for example, a serial port.

Alternatively, and especially in the case of laptop computers, an infra-red port such as the IrDA data port could be used. This would be better in many ways as the hardware required to support this type of connection is more compact than an actual physical plug and socket, without being particularly

expensive.

As an alternative to a separate means for pre-programming the keys, a coding system utilising those keys that are present on the handset together with the implementation of a special 'program mode' on the handset can be used. The means to enter program mode needs to be further controlled, possibly by the use of a code known only to the parent. This coding system is similar to that employed in car radio/stereo systems as a deterrent to theft. However it is less secure than the previous method as the possible number of codes required to enter program mode, whilst potentially large, is finite and therefore susceptible to a form of 'hacking'. Alternatively program mode could be entered by the application of an external signal, this in turn could be from a small custom device or a PC connected either by cable or by a wireless connection. A simpler embodiment of this would be to use a physical key.

Another aspect of the invention is that both incoming and outgoing numbers could be controlled, the programming means could also input to the handset a restricted number of incoming call numbers. Whilst this is a simple extension of the method by which the keys are pre-programmed, it is not envisaged as a permanent feature, rather one which can be turned on or off by the parent.

For further understanding of the invention embodiments of it will now be described, purely by way of example, with reference to the accompanying diagrams in which:

Figure 1 shows a handset according to the invention.

Figure 2 shows the arrangement for programming the handset.

Figure 3 shows how a PC can be used to program the handset.

Figure 1 shows a handset 11 according to the invention; item 12 is the antenna, 13 the display. The non-numeric keypad 14 in this case has 6 buttons labeled A to F. A socket 15 by which programming information is input to the handset is also indicated.

Figure 2 shows how a separate device 22 is used to program a handset 21 via a cable 24. The programming device 22

in this case does have a numeric keypad 23 and a small display 25.

Figure 3 shows how a PC 31 can be used to program a handset 32 again by a cable 33.

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Whilst the terms parent and child have been used thus far in the application it should be understood by these terms that use is not restricted to parents and children. Indeed any situation wherein a mobile phone handset needs to be

10 controlled in this manner would be an appropriate application of the invention. For example employer provided mobile phones could be restricted in their use by the employee in this way.

It is also further envisaged that manufacturers would include a single dedicated button for contacting emergency
15 services (ie 999).

Claims

1. A mobile phone handset without a conventional numeric keypad but with a number of pre-programmed keys for dialing phone numbers and a means for pre-programming these keys that is not available to the user of the handset.
5
2. A handset according to Claim 1 in which the means for pre-programming the keys is physically separate from the handset.
10
3. A handset and programming means according to Claim 2 in which the programming means is connected to the handset by a cable.
15
4. A handset and programming means according to Claim 2 in which the programming means is connected to the handset by a wireless connection such as the IrDA standard.
- 20 5. A handset and programming means according to any preceding claim in which the programming means is a normal PC.
6. A handset and programming means according to Claim 1 in which the programming means is contained in the handset itself but the control of said means is via a special mode on the handset, access to said mode not being available to the user of the handset.
25
7. A handset and programming means according to Claim 6 in which the handset is switched into programming mode by the input of a code not known to the user of the handset.
30
8. A handset and programming means according to Claim 7 in which the handset is switched into programming mode by the application of an external signal.
35
9. A handset and programming means according to Claim 8 in which the means to apply the external signal includes a physical connection between handset and said means.
40
10. A handset and programming means according to Claim 8 in

which the means to apply the external signal includes a wireless data connection such as the IrDA standard.

11. A handset and programming means according to any of
5 claims 8, 9 and 10 in which the means to apply the external signal is a PC and appropriate software.
12. A handset and programming means according to Claim 6 in
10 which the handset is switched into programming mode by the use of a physical key.
13. A handset and programming means according to any
preceding claim in which the programming means can be used
15 to determine those calls which can be received by the handset as well as those calls which can be made from the handset.
14. A handset according to any preceding claim wherein a
20 single dedicated button is provided for the purposes of calling emergency services.



INVESTOR IN PEOPLE

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Claims searched: 1 to 14

Examiner: Glyn Hughes
Date of search: 15 November 2000

Patents Act 1977 Search Report under Section 17

Databases searched:

UK Patent Office collections, including GB, EP, WO & US patent specifications, in:

UK Cl (Ed.R): H4L (LECY, LESF, LEUF), H4K (KBHF, KBHG, KBNJ)

Int Cl (Ed.7): H04M 1/66

Other: Online: WPI, JAPIO, EPODOC

Documents considered to be relevant:

Category	Identity of document and relevant passage	Relevant to claims
X	GB 2258584 A (RANSOME) see whole document	1-5, 14
X	EP 0822695 A1 (PHILIPS) see whole document	1, 6, 7, 12
X	DE 29914579 U1 (LIWSCHIN) see WPI abstract	1, 6, 7, 8, 10, 12
X	DE 29706223 U1 (HUEBNER) see WPI abstract	1, 2, 5
X	FR 2725099 A1 (EVE ET AL) see WPI abstract	1-3, 5, 14

X	Document indicating lack of novelty or inventive step	A	Document indicating technological background and/or state of the art.
Y	Document indicating lack of inventive step if combined with one or more other documents of same category.	P	Document published on or after the declared priority date but before the filing date of this invention.
&	Member of the same patent family	E	Patent document published on or after, but with priority date earlier than, the filing date of this application.